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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,641	01/29/2004	Gernot Schmierer	DFS-170-A	5404
22825	7590	06/30/2005	EXAMINER	
WILLIAM M HANLON, JR YOUNG & BASILE, PC 3001 WEST BIG BEAVER ROAD SUITE 624 TROY, MI 48084-3107			OKEZIE, ESTHER O	
			ART UNIT	PAPER NUMBER
			3654	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,641

Applicant(s)

SCHMIERER ET AL.

Examiner

Esther O. Okezie

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 22-24 is/are rejected.
- 7) ☒ Claim(s) 19-21 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/29/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1,2, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmalz et al.
2. Re claim 1, Schmalz et al discloses a vacuum gripper for suctioning workpieces comprising: a vacuum connection (14); a flexible suction body (20); a suction body holder (12), the side of the suction body facing a workpiece the workpiece including a sealing lip (22) bounding a vacuum chamber (26) and the vacuum chamber is connected by air flow to a vacuum connection; the suction body having a contact surface (44) abutting the workpiece with prevailing vacuum in the vacuum chamber and the contact surface including a microstructure (36,38,40) formed of one of rod, louver, and pin-shaped elements.

It is noted that the microstructure of elements are meant only to be generally small and not microscopic in that the disclosure specifies the elements are to be between 0.1 and 1mm (10^{-3} meters) in length while a microscopic length would be 10^{-6} meters.

3. Re claim 2, the elements are part of a microstructure (fig 3).
4. Re claim 16, the elements extend over 70 to 95 percent of its radius, starting from the center of the vacuum gripper (fig. 3).

5. Claims 1-3,5-7,11,12,14,15 are rejected under 35 U.S.C. 102(b) as being anticipated by Lingen.

6. Re claim 1, Lingen discloses a vacuum lifting plate for suctioning board shaped production pieces comprising: a vacuum connection (25); a flexible suction body (3); a suction body holder (lifting plate 1), the side of the suction body facing a workpiece the workpiece including a sealing lip (23) bounding a vacuum chamber (8) and the vacuum chamber is connected by air flow to a vacuum connection; the suction body having a contact surface (4) abutting the workpiece with prevailing vacuum in the vacuum chamber and the contact surface including a microstructure (setting strips 5) formed of one of rod, louver, and pin-shaped elements.

7. Re claim 2, the elements are part of a microstructure (fig 5).

8. Re claim 3, at least one of the elements and the free ends of the elements are plially flexible ("Seating strips 5 are provided in a specific pattern on the underside 4 of the lifting plate, the strips 5 consisting of a metal strip 6 on top and an elastic flexible strip 7 made from a sealing material" column 2, lines 63-66; lines 31-32; fig. 5).

9. Re claim 5, the elements are disposed as one piece on the suction body (fig 5)

10. Re claim 6, the elements are disposed on a carrier to be attached to the vacuum gripper (lifting plate 1 is connected to the suspension arrangement or suction body 3; fig 3)

11. Re claim 7, wherein the carrier is one of a plate (1).

12. Re claim 11, wherein the elements have a flattened end (figs. 1,2,5).

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13. Re claim 12, wherein the elements have a flat cross section (figs. 1,2,5).
14. Re claim 14, the elements project perpendicularly from the contact surface (fig. 5).
15. Re claim 15, the sealing lip ("outer sealing lip 23" column 3, lines 15-16) is free of the elements (fig 4).
16. Claims 1-3, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Carpenter.
17. Re claim 1, Carpenter discloses a vacuum apparatus for lifting roll goods comprising: a vacuum connection (16); a flexible suction body (1); a suction body holder (plate 10), the side of the suction body facing a workpiece the workpiece including a sealing lip (12) bounding a vacuum chamber (column 1, lines 63-65) and the vacuum chamber is connected by air flow to a vacuum connection (piping 16); the suction body having a contact surface (underside of plate 10) abutting the workpiece with prevailing vacuum in the vacuum chamber and the contact surface including a microstructure (blocks 44) formed of one of rod, louver, and pin-shaped elements.
18. Re claim 2, the elements are part of a microstructure (fig 3).
19. Re claim 3, at least one of the elements and the free ends of the elements are plially flexible(column 2, lines 56-68).
20. Re claim 8, the elements are made of plastic (column 2, lines 56-68).

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21. Claims 1-5,8 are rejected under 35 U.S.C. 102(b) as being anticipated by Farmer et al.

22. Re claim 1, Farmer et al discloses a vacuum operated load grab comprising: a vacuum connection (27); a flexible suction body (14); a suction body holder (16), the side of the suction body facing a workpiece the workpiece including a sealing lip (40) bounding a vacuum chamber (26) and the vacuum chamber is connected by air flow to a vacuum connection (27); the suction body having a contact surface (68) abutting the workpiece with prevailing vacuum in the vacuum chamber and the contact surface including a microstructure (60 and 70, fig 4) formed of one of rod, louver, and pin-shaped elements.

23. Re claim 2, the elements are part of a microstructure (fig 4).

24. Re claim 3, at least one of the elements and the free ends of the elements are plially flexible(column 4, lines 1-24).

25. Re claim 4, the elements are formed of the same material as the vacuum gripper (the cup assembly is made of rubber or other elastic material: rubber casing 40, rubber rim 14, rubber rubber platform 46, rubber sealing element 60rubber ridges 70; column 3, lines 35-47, lines 70-75; column 4, lines 5-40)

26. Re claim 5, the elements are disposed as one piece on the suction body (fig 4)

27. Re claim 8, the elements are made of plastic (column 4, lines 4-7).

28. Claims 1,2,12,13 are rejected under 35 U.S.C. 102(b) as being anticipated by Wood.

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29. Re claim 1, Wood discloses a vacuum operated load grab comprising: a vacuum connection (opening 30 connected to air passageway 114; fig 5); a flexible suction body (20); a suction body holder (14), the side of the suction body facing a workpiece the workpiece including a sealing lip (32) bounding a vacuum chamber (16) and the vacuum chamber is connected by air flow to a vacuum connection; the suction body having a contact surface (face 22) abutting the workpiece with prevailing vacuum in the vacuum chamber and the contact surface including a microstructure (24,26,28) formed of one of rod, louver, and pin-shaped elements.

30. Re claim 2, the elements are part of a microstructure (fig 2).

31. Re claim 12, the elements have a flat cross section (fig 5).

32. Re claim 13, a blade plane for element with a flat cross section extends in the circumferential direction of the vacuum gripper (V-shaped or blade shaped elements 34, 36, 38 extend in the circumferential direction; fig 8, "... pad 20 is provided with peripheral or circumferential generally V-shaped groove or slit 38 formed in the periphery thereof and spaced away from the sealing lip 32" column 3, lines 37-40).

33. Claims 1,2, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Reimann.

34. Re claim 1, Reimann discloses a vacuum operated load grab comprising: a vacuum connection (6); a flexible suction body (2); a suction body holder (1), the side of the suction body facing a workpiece the workpiece including a sealing lip (8) bounding a vacuum chamber (column 3, lines 22-24) and the vacuum chamber is connected by air

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flow to a vacuum connection; the suction body having a contact surface (5) abutting the workpiece with prevailing vacuum in the vacuum chamber and the contact surface including a microstructure (9,10,11) formed of one of rod, louver, and pin-shaped elements.

35. Re claim 2, the elements are part of a microstructure (fig 1).

36. Re claim 18, Reimann discloses a method for producing a suction gripper in accordance with claim 1, characterized by the steps of injection molding the suction gripper (column 2, lines 31-40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

37. Claims 9,10,17,22,23,24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carpenter. Carpenter discloses the raised thickness of the seals (32,30, and 12) and blocks (46) "should be that thickness which will keep the seals from deforming or tearing when the vacuum is applied and the lifting force engaged" (column 2, lines 53-56). In generally the seals have a thickness depending on the material used. For plastic or rubber the thickness is from one-fourth of an inch to one inch. For polyethylene film a thickness from about three-eighths inch to about three-fourths inch is suitable (column 2, lines 56-64). These lengths correspond to about 6.35 to 25.4 mm.

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While the blocks (46) have considerably less thickness than the seals (column 3, lines 19-24) and are provided equidistant apart (column 3, lines 5-10). Carpenter does not disclose the length of the elements being two to twenty times larger than the length, or the distance between the elements at a distance from each of 0.5 to 2.5 times their thickness, or the length measuring 0.1 to 3mm, or a length five to 10 times greater than the thickness, or the length measuring from 0.5 to 1.0 mm. It would have been obvious to one of ordinary skill in the art to dimension the elements of Carpenter such that depending on the material the thickness should be that thickness which will keep the elements from deforming or tearing when the vacuum is applied and the lifting force engaged (column 2, lines 53-56).

Allowable Subject Matter

Claims 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US-4582353, 3152828, 3005652, 4635988, 3556579, 3330589.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Esther O. Okezie whose telephone number is (571) 272-8108. The examiner can normally be reached on Mon-Thurs 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Katherine A. Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EOO



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